QUALITATIVE AND QUANTITATIVE ANALYSIS OF FISH AND PRAWN MAINTAINED AT THREE DIFFERENT TEMPERATURES

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2001

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ABSTRACT

This present study was conducted at the Zoology Laboratory of EUSL to evaluate how time and temperature affect the quality and shelf life of fish and prawn. Changes in the quality of fish and prawn were determined by chemical and microbial analysis. Special emphasize was given to determine the maximum period that both fish and prawn could be held refrigerated at 0°c, 4°c and room temperature(27^0c-30^0c).

The bacterial load increase significantly with time ($P<0.005$). The initial load of bacterial population increases by three times after 72 hours of storage at room temperature. Reduction in storage temperature close to freezing point has a potential effect lowering the microbial population in fish and prawn. That is preserving them at 0°c and 4^0c could extend their acceptability.

Based on the results it is obvious gutting before refrigeration also affect the spoilage of fish and prawn. From the statistical analysis it is clear that there was a significant difference ($P<0.005$) in the spoilage pattern of gutted and gutless sample of fish and prawn. Spoilage rate was more rapid in gutted sample.

The changes in protein content of fish and prawn with time were measured at different storage time by Kjeldhal method. Threre was a significant variation ($P<0.005$) in protein deterioration at different temperatures and after different period of storage. Protein degradation was very fast at room temperature due to the combined activities of enzymes that persists in fish flesh and microbes and their subsequent chemical activities. Comparative analysis of protein degradation at 4^0c and 0°c depicted that the protein degradation was rapid at 4^0c than 0°c.Of the total protein content only 15% was degraded after 32 days of storage at room temperature.

Present studies indicate there was a random fluctuation in pH during the study at different temperatures. The flesh of fish and prawn have a neutral pH. This pH moderately decline after 2 or 3 days of storage at room temperature.

The number of amino acids increases with days and then starts to decline. These changes may be due to deterioration of certain amino acids and reappearances of certain amino acids during long period of storage.

Overall, the subjective quality and quantity of both fish and prawn, held in0^0C and 4^0c

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